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(54) Title: CIRCUIT LAYOUT COMPACTION USING RESHAPING

(57) **Abstract:** A critical path minimization technique uses a novel reshaping layout reorganization mechanism. Circuit objects and/or object fragments which belong to a critical path in a reference direction are reshaped using resources of an orthogonal direction. A fragment may decrease its size in the layout in the reference direction and increase its size in the orthogonal direction. Types of reshaping include via, diode or tie reshaping, transistor chain reshaping by transistor finger resizing, and transistor chain reshaping by transistor finger removing. The removal technique can include removal of one (or 2N+1) transistor finger(s) from an edge (e.g., beginning or end) of a transistor chain, removal of two (or 2N) adjacent transistor fingers from any position of a transistor chain, removal of one (or 2N+1) transistor finger(s) from inside a transistor chain with diffusion gap insertion, and removal of a group or series of transistor fingers. Such reshaping can allow a more effective compaction of a circuit layout